

IN THE CLAIMS:

1.-14. (Cancelled)

15. (Currently Amended) In a semiconductor production assembly utilizing a source of fluid, the improvement of a mass flow controller module that can control fluid flow and be installed as a unitary component, comprising:

a housing block member having a fluid passageway connected to the source of fluid, mounted on the housing block member is the mass flow controller module including, from an upstream position in a consecutive and adjacent arrangement, [[is]] a pressure control valve unit, a flow rate sensor unit and a flow rate control valve unit;

a pressure sensor unit is operatively mounted in the fluid passageway; and

a control unit in the mass flow controller module is operatively connected to the pressure control valve unit, the flow rate sensor unit, the flow rate control valve unit and the pressure sensor unit whereby the control unit can automatically set and maintain a constant flow rate despite changes in fluid pressure, wherein the housing block member has a non-linear the fluid passageway with openings to the passageway on an upper surface, the openings including a first annular valve seat for operatively interfacing with a diaphragm member of the pressure control valve unit, a pair of ports for connection to the flow rate sensor unit and a second annular valve seat for operatively interfacing with a diaphragm member of the flow rate control valve and the openings to the fluid passageway are aligned in a row adjacent each other across the housing block member.

16. (Previously Presented) The semiconductor assembly of claim 15 wherein a second pressure sensor unit is mounted between the pressure control valve and the flow rate sensor and operatively connected to the control unit.

17. (Previously Presented) The semiconductor assembly of claim 16 wherein the pressure control valve unit, flow rate sensor unit and flow rate control valve unit are respectively mounted adjacent each other on fluid openings on the housing block member including a pressure control valve seat and a flow rate control valve seat.

18. (Previously Presented) The semiconductor assembly of claim 15 further including a filter member mounted in the housing block member fluid passageway upstream of the pressure control valve unit.

19. (New) A mass flow controller including a flow rate control valve and a flow rate sensor for regulating fluid flow, characterized by comprising a pressure control valve disposed at an upstream side of the flow rate control valve, a pressure sensor disposed between the pressure control valve and the flow rate control valve, and a controller for controlling the pressure control valve by feeding back an output of the pressure sensor, wherein the flow rate sensor is disposed between the pressure control valve and the flow rate control valve to enable the controller to regulate the fluid flow rate.

20. (New) The mass flow controller according to claim 19, wherein the flow rate sensor and the pressure control valve are arranged in a side by side position.

21. (New) The mass flow controller according to claim 20, wherein the pressure sensor is disposed between the pressure control valve and the flow rate sensor.

22. (New) The mass flow controller according to claim 19, wherein the pressure control valve, the flow rate sensor and the flow rate control valve are aligned at one side of a passage block.

23. (New) The mass flow controller according to claim 19, wherein the pressure sensor is disposed at a side of the passage block, different from the side on which the pressure control valve, the flow rate sensor and the flow rate control valve are mounted.

24. (New) The mass flow controller according to claim 20, wherein the pressure control valve, the flow rate sensor and the flow rate control valve are aligned at one side of a passage block.

25. (New) The mass flow controller according to claim 21, wherein the pressure control valve, the flow rate sensor and the flow rate control valve are aligned at one side of a passage block.

26. (New) The mass flow controller according to claim 20, wherein the pressure sensor is disposed at a side of the passage block, different from the side on which the pressure control valve, the flow rate sensor and the flow rate control valve are mounted.

27. (New) The mass flow controller according to claim 21, wherein the pressure sensor is disposed at a side of the passage block, different from the side on which the pressure control valve, the flow rate sensor and the flow rate control valve are mounted.

28. (New) The mass flow controller according claim 22, wherein the pressure sensor is disposed at a side of the passage block, different from the side on which the pressure control valve, the flow rate sensor and the flow rate control valve are mounted.

29. (New) The mass flow controller according to claim 22, wherein the passage block is formed integrally as one unit.

30. (New) The mass flow controller according to claim 23, wherein the passage block is formed integrally as one unit.